

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 March 2004 (11.03.2004)

PCT

(10) International Publication Number
WO 2004/020581 A2

- (51) International Patent Classification?: C12N (74) Agents: CORUZZI, Laura, A. et al.; Pennie & Edmonds LLP, 1155 Avenue of the Americas, New York, NY 10036 (US).
- (21) International Application Number: PCT/US2003/026073
- (22) International Filing Date: 15 August 2003 (15.08.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/404,311 15 August 2002 (15.08.2002) US
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: MAMMALIAN GENES INVOLVED IN RAPAMYCIN RESISTANCE AND TUMORGENESIS: RAPR7 GENES

SEQ ID NO:1

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AAACTCCCTC
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(57) Abstract: The invention provides nucleotide sequence of a novel mammalian gene which is involved in rapamycin resistance and tumorigenesis, the RapR7 gene, and amino acid sequences of its encoded proteins, and fragments and derivatives and analogs thereof. The present invention also provides methods and compositions for regulating rapamycin resistance and/or tumorigenesis by modulating the expression and/or the activity of RapR7 gene. The invention also provides methods and compositions for treatment of diseases, e.g., cancers, by modulating the expression and/or activity of RapR7 gene. The invention also provides methods and compositions for diagnosing and screening RapR7 mediated rapamycin resistance and/or tumorigenesis in patients. The invention further provides host cells whose RapR7 gene can be reversibly overexpressed, and to methods of using the RapR7 gene in evaluation and screening for drugs which regulate rapamycin resistance and/or tumorigenesis.